

Application No.: 10/716,597
Filed: 11/20/2003
Inventor(s): André Meunier et al.

REMARKS

All eighteen claims as filed remain on file and unchanged, except claim 18 as noted below. A new independent method claim 19 has been added, which raises to four the number of independent claims, namely claims 1, 7, 16 and 19.

• **35 U.S.C. § 112 rejection**

Claim 18 has been amended, and now depends from claim 17 instead of claim 14 as suggested by the Examiner.

• **35 U.S.C. § 103(a) rejections**

In the Examiner's opinion, independent claims 1, 7, 16 as filed are unpatentable over Simmons in view of Lavecchia, and are further unpatentable over Simmons in view of Fulsom. The applicant disagrees with the Examiner and respectfully asks the Examiner to reconsider her rejection in view of the following arguments.

The Simmons patent relates to a snowmobile ski of the type especially suited for gliding over deep powdered snow as opposed to a ski suited to slide over flat hard-packed snow or ice. The inability of snowmobile skis having a flat, relatively smooth undersurface to function properly in deep powdered snow, are indeed recited in the "Background of the invention" section of the Simmons patent. For example, it is mentioned in this section that "*Conventional skis (...) exhibit shortcomings in the area of flotation in deep powdered snow (...) [O]n steep slopes that are covered with snow that is powdery and light (...) [conventional skis] fail to provide a packable base to support the snowmobile below a certain speed (...)*".

The Simmons patent teaches a snowmobile ski having a concavely shaped undersurface forming a channel 24 (as best seen in figures 2-3) to provide the ski with increased flotation in deep powdered snow. The construction of this channel 24 is detailed in the text of the Simmons patent, column 6 lines 32-40;

"Additionally, the snow under the ski can be considered equivalent to a fluidized bed from fluid dynamic principles. It is desirable to create a high pressure at the

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center of the ski 10 to create a high degree of flotation in the snow under the ski. One manner of so doing is by [1] maximizing the volume of the channel. This creates [2] a large surface area for planing over the snow. It also provides [3] a low resistance of flow through the channel."

(Our annotations and underlining)

Moreover, it is further stated in the description of the Simmons patent, on column 9 lines 24-29, that:

"In practice, the capturing of denser, heavier, or wetter snow in the channel 24, between the keels 20 and under the ski 10 in turn, [4] tends to pack the snow, rather than allow it to escape (...)"

(Our annotation and underlining)

Accordingly, the ski described in the Simmons patent is provided with means for increasing the flotation of the ski when gliding over snow, and especially when gliding over a thick layer of deep powdered snow. Increased flotation is achieved by providing a channel 24 on the undersurface of the ski, which defines a maximized volume and effective planing surface area, with minimal flow resistance therethrough. In use, the snow over which the ski is planing is funnelled and packed in channel 24 between the lateral keels of the ski, in order to provide a packed base to the ski to increase its steering efficiency, and to prevent the ski to sink into thick layers of deep powdered snow.

The tri-keeled ski of the present invention, on the other hand, is especially suitable for gliding over surfaces of hard-packed snow or ice, such as rammed snowmobile trails. The present ski comprises a centrally located keel in addition to two lateral keels which can all cooperate to provide the ski with a new and unique self-steering functionality. However, this self-steering functionality is beneficial especially on

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hard, compacted snow surfaces, and not so much on fluffy snow surfaces, as mentioned on page 17, line 12-21 of the present specification:

"The above-described turn-carving position of ski 50 is particularly advantageous when ski 50 engages a hard surface such as compacted snow or ice. Indeed, in the case where ski 50 engages a free fluffy and abundant snow surface, then the biting effect of keels 80, 82, 84 will be lessened. (...) Thus, the particular keel arrangement of the present invention, although it allows the ski to have an advantageous channel arrangement, is especially advantageous on hard ground surfaces, such as compacted snow or ice, where keels 80, 82, 84 may have an optimum engagement against the hard ground surface for increased gripping effect."

(Our underlining)

Even though it is mentioned in column 5, lines 44-45 of Simmons that the ski could be provided with a third, centrally located keel, the applicant is of the opinion that providing a third, centrally located keel on the sole of the ski of the Simmons patent, would defeat the main purpose of the ski of the Simmons patent.

The applicant is of the opinion that providing a third, centrally-located keel between the two laterally-located keels of the ski of the Simmons patent is undesirable, because it would decrease the large surface area (see [1] above) of channel 24, and the volume of channel 24 (see [2] above) sought by the ski design of the inventor. Moreover, providing a third, centrally-located keel in addition to the two lateral keels, would hinder the snow from freely flowing through channel 24 and would increase the resistance of flow (see [3] above) of the snow through channel 24.

Moreover, if a third centrally-located keel was provided on the undersurface of the ski of the Simmons patent, between the lateral keels in the middle of channel 24 of the ski, channel 24 would be divided in two. The flow of snow channelled

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therethrough would therefore be broken in two when colliding with the leading edge of the central keel, before reaching the rear tip of the ski, and would cause the snow to escape on both sides of the ski, as is the case with the ski of the present invention. Such escape of snow is undesirable since it impedes the flotation characteristic of the Simmons ski, as suggested by [4] above. The snow-compaction effect of the ski of the Simmons patent, allowing the creation of a "high pressure at the center of the ski 10 to create a high degree of flotation in the snow under the ski" (column 6, lines 36-37) could not be properly accomplished if it were provided with a centrally located keel.

The undesirability of having centrally mounted keels on the ski of the Simmons patent is even suggested in the specification, in column 7, lines 23-25:

"Mounting the keels 20 at the outside of the body 12 causes a substantially greater bite compared to the centrally mounted keels of conventional skis."

In any event, it is understood and well known in the art that the Simmons ski design is adapted to deep powdered snow conditions, whereas the ski of the present invention is adapted to hard-packed trail conditions where little or no deep powdered snow is present.

It can thus be inferred from a reading of the specification of the Simmons patent, that providing a centrally located keel in the middle of channel 24 teaches away from Simmons' invention. Therefore, Simmons did not envision the provision of a centrally located keel to create a self-steering behaviour of the ski, since such functionality occurs especially to the particular claimed design of the present invention on surfaces covered with hard-compacted snow.

Now turning to the Lavecchia patent. When moving about a snowy surface, the rear runner of the sporting device of the Lavecchia patent, called the "stabilizing runner" in the description, prevents the rear portion of the device to sideslip, by sinking into and applying friction on the underlying snow. This rear runner therefore provides the sporting

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device with the possibility to attain greater speeds without losing control. Accordingly, this rear runner has the purpose of imparting increased stability to the sporting device of the Lavecchia patent.

As for the Fulsom patent, the rear runner of the ski board disclosed therein is intended to stabilize the ski, similarly to the stabilizing runner of the Lavecchia patent, and also has the purpose of helping the ski to maintain a straight trajectory when the ski is gliding about a snowy surface.

In the ski of the present applicant's invention, the rear keel has the purpose of allowing the ski to tilt sidewardly to reach a so-called turn-carving position. Indeed, a ski gliding in a given straight path and which is suddenly oriented in a deviating path is tilted laterally by pivoting about the bottom edge of the rear central keel. The presence of a ground clearance made in the bottom surface of the ski obviates contact of the bottom surface of the ski with the ground when the ski is tilted in order to reach its turn-carving position, where one of the front keels is lifted above the level of the ground (the so-called "ground plane" in the present claims 1 and 7, and the "ground surface" in claim 16). In such a turn-carving position, the two keels still in contact with the ground plane, i.e. the rear central keel and the other front keel, can cooperate with each other in order for the ski to be spontaneously steered in the direction of the turn.

It is to be noted that the absence of a ground clearance would not permit such self-steering of the ski. Without such ground clearance, the bottom surface of the ski would abut against the ground before the ski could have reached its turn-carving position, thus not allowing one of the front keels to be lifted above the level of the ground, and thus blocking the deployment of the self-steering capability of the ski.

Fulsom and Lavecchia both lack the claimed ground clearance, and it would not have been obvious to include one since the Fulsom and Lavecchia skis are not intended to tilt on their keels as the ski of the present invention does. This is in part due to the intended use of the Fulsom and Lavecchia skis which are sport boards that are not intended to be attached to a snowmobile.

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Thus, the rear runner of the Fulsom and Lavecchia patents merely allows stabilization of the corresponding snow-gliding device when it is moving in a straight line. In the present invention on the other hand, it is the synergetic combination of the rear central keel, the pair of longitudinally offset lateral keels and of the ground clearance made in the bottom surface of the ski which allows the deliberate destabilization or tilting of the ski from a straight-line position into a turn-carving position, in order to impart a new and unique self-steering functionality to the snowmobile ski.

Therefore, it is the applicant's opinion that the combination of the teachings of the Simmons patent, which teaches a ski intended to be used especially in deep powdered snow, and of the teachings of the Fulsom or Lavecchia patents, which exhibit a sports board equipped with a rear runner provided solely for stabilization purposes and lacking any ground clearance, would not be obvious to obtain the presently claimed invention. The applicant believes a synergetic interaction arises from the combination of the lateral keels, the central keel and the ground clearance of the present ski design, which are all structural limitations incorporated to independent claims 1, 7 and 16 as filed and absent and unobvious from the Simmons/Lavecchia/Fulsom combination. Indeed, from the ingenious combination of these structural limitations of the present invention arises a new and unique self-steering behaviour of the ski, which is not disclosed nor suggested in any of the patents cited by the Examiner. The applicant is of the opinion that independent claims 1, 7 and 16 should therefore not be considered obvious in view of the prior art cited by the Examiner.

Finally, there should be some motivation or incentive to combine the Simmons/Lavecchia and Simmons/Fulsom references within these references: applicant fails to see any. One reason for this is that the Fulsom and Lavecchia boards are not intended for use on snowmobiles.

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It is thus the opinion of the applicant that independent claims 1, 7 or 16 should be considered patentable in light of the foregoing argumentation. Dependent claims 2, 6, 8, 15 and 17 should also be considered patentable since they depend directly or indirectly from either one of these independent claims 1, 7 or 16.

New independent claim 19 has been incorporated to the present application to more accurately define the scope of protection sought by the applicant. No new subject matter is incorporated to the present application by the addition of claim 19, as the method for steering a ski is fully described in the disclosure, for example on page 14, line 7 to page 18, line 12. This new claim 19 is believed to be patentable over the prior art of record.

In light of the above arguments, the Applicant therefore asks the Examiner to reconsider her opinion regarding patentability of the present invention as claimed in original claims 1-18. A favourable consideration of the patentability of the new method claim 19 is also hereby requested.

In the event where only minor changes were required to process this application to allowance, the Examiner is invited to call the undersigned at phone number (514) 861-4831 to work by way of Examiner's amendment so as to expedite the prosecution of this application.

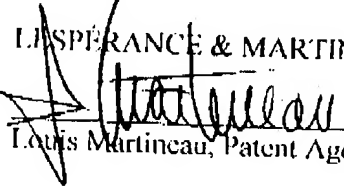
Regards,

LESPÉRANCE & MARTINEAU


Louis Martineau, Patent Agent #43676

It is hereby certified that this amendment paper, consisting of 16 page(s) including 8 page(s) of the present letter and the 8 annexed pages of annotated claims, is being facsimile transmitted to the United States Patent and Trademark Office on June 30, 2004.

LESPÉRANCE & MARTINEAU


Louis Martineau, Patent Agent #43676

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